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SOLVING THE ENGINEERING PROBLEMS OF METROPOLITAN AREAS

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SOLVING THE ENGINEERING PROBLEMS OF METROPOLITAN AREAS

G. H. Herrold, M. ASCE[1]

SYNOPSIS

The growth and development of cities and their suburbs require a new conception of government if we are to cope with the engineering problems that lie partly in the city and partly in the country. The "Standard Metropolitan areas" established by the Bureau of the Census for 1950 population studies gives the cue to integrating these two diverse communities for the solution of their physical problems and services. "The Standard Metropolitan area," Minneapolis and St. Paul, is cited as an example of the many units of government in one standard area and what students of government have suggested as methods of integration.

The population of cities has been spilling over its boundaries, creating fringe developments especially in the last decade. Many families are moving to the cities' outskirts because they are intrigued by country living, the cost of living would probably be less, taxes would be lower, and they would not be crowded on a small plot of land. They didn't think much about many of the city's services they took for granted, such as garbage and refuse collection and disposal, sewerage, public water supply, walks, paving, street lighting, schools, hospitals, express highways and parkways and the many other conveniences that go with city living. The more recent emphasis on locating industrial plants on outlying sites for military safety is another factor raising the question of unification of governmental units on some metropolitan-wide basis to provide engineering services and constructions in the "suburban" territory at standards approaching those rendered in the central city.

The U. S. Census of 1950 delineates "standard metropolitan areas" and so-called "urbanized areas" as well. The urbanized areas cover in addition to the central city or cities the fringe or spill-over areas or, those areas which are really urban in their character and therefore logical units for the collections of statistical data about people. The urbanized area is the "physical city" as distinguished from the legal city. It is the settled area of the standard metropolitan area. There has been established by the Bureau of the census 168 metropolitan areas which are social and economic entities. Their aggregate population totals 84,500,000 people or 60% of the total population of the U. S. Of these 84,500,000 urban people over 50 million live in the central cities and the remainder in the spill over or fringe areas. Sixty-eight of the

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168 standard metropolitan areas have more than half of their population living outside of the central city, but the rate of increase in the central city has been less than 14% since 1940 while in the outlying areas population increased 35%. The population of the United States increased 19 million from 1940 to 1950. Fifteen million of this increase was in the standard metropolitan areas and nearly one half the increase was outside the central city or cities. This is a phenomena that should interest municipal engineers, traffic engineers and city planners. These metropolitan areas require special governmental machinery to cope with metropolitan engineering and planning problems which cannot be solved under existing laws. The anomaly of urbanized areas is that large aggregations of people live under the most advanced municipal engineering comforts while others, their neighbors, live in a relatively pioneering state of development.

There are 137 units of government in the Minneapolis-St. Paul metropolitan area—counties, townships, cities, and villages, each operating independently of each other, going their own way, making their own individual plans and devising their own regulatory ordinances such as building, zoning, traffic and health codes. There are also 122 school districts in this area cutting across the boundary lines of these other governmental units and in addition there are drainage districts set up by the courts. Students of government have pointed to ways of correcting this situation. In the Minneapolis-St. Paul standard metropolitan area the simplest way, it would seem, is for the two principal cities to combine and annex the entire territory. This would be difficult to accomplish politically especially since the greatest objection would come from the fringe communities whose populations are made up mostly of city folk who selected country living as an escape from urban conditions. It would take years of public education to convince the fringe people that their economic stability demands such a change, that their engineering problems cannot be solved under existing forms of government and that consolidation and annexation is the best way to obtain modern municipal services. Consolidation would result in higher standards of design, specification, construction, and inspection.

The most notable recent example of annexation in the United States is probably that of Atlanta, Georgia, which in 1951 trebled its area and added 100,000 people and 82 square miles of territory. In comparison 309 cities made land acquisitions in 1951 with a total annexed area of only 148 square miles, an average of 0.2 acre per city—the process is slow.

Another method suggested is the Federated metropolis such as the government of London, England. It is a central city with 28 boroughs. The central city or administrative area consists of 117 square miles while the ring of boroughs contain 693 square miles. The theory of government briefly gives all powers and duties which require uniformity of action throughout all boroughs to the central city council. Powers and duties that can be locally administered remain with the borough councils. The metropolitan police district covers the city and boroughs. The London health area extends far beyond to cover the outer ring of suburbs. Such an idea should be acceptable but when proposed by a study group in Boston in 1896 and Atlanta in 1929 the proposal died in the Legislature. Also the metropolitan areas of Oakland in 1922, Pittsburgh in 1929,

St. Louis in 1930, and Miami in 1948 voted down this form of government.[2]

Another suggestion is the city-state. This method would detach a city and its satellites from its state or several states and confer upon them separate state-hood. This has been proposed for the metropolitan areas of New York. A study of the attempts of Alaska and Hawaii to attain state-hood indicates how difficult this would be.

Another example of integrating metropolitan areas is illustrated in the merger of 12 units of government with the city of Toronto, Canada. This is a federation covering the essential services required by a metropolitan area and it makes Toronto the seventh largest city in North America—1,200,000 people on 240 square miles all within a radius of 20 miles. The powers which are not specifically designated in this merger legislation remain in each unit of government. It is anticipated that from this merger will evolve a planned metropolitan area with a legal basis for integrating engineering projects. An often used method of integrating metropolitan engineering projects is through "authorities". This is often acceptable because it requires no structural change in the established units of government. The New York Port authority, the Chicago Sanitary district, the Boston Metropolitan Park Commission,[3] the Metropolitan Airport Commission and the Sanitary District Commission of Minneapolis and St. Paul are examples.

In the pre-automotive age when walking was the usual mode of travel two separate cities like St. Paul and Minneapolis could logically grow side by side. St. Paul was located at the head of navigation on the Mississippi River and all commodities for developing the northwest came through the port of St. Paul. It was the distributing center for both the northwest and British Columbia. Minneapolis was located 10 miles up stream on the Falls of St. Anthony in the Mississippi River because power potential was sufficient to develop a city there. Today, under the present mode of travel and economic inter-relationship, St. Paul and Minneapolis are one financially and socially and should be one politically.

After reviewing these various governmental suggestions it would seem that the logical approach for integrating the engineering services and construction in these standard metropolitan areas would be through metropolitan authorities and their functions can best be determined by means of metropolitan planning agencies. Voluntary metropolitan planning commissions should be set up in all "standard metropolitan areas". Such a commission, well staffed with technical talent could make the basic studies and surveys and general physical plans of development and point the way to which things come first. This would get these matters before the established governmental units in an intelligent manner and would be a guide in establishing authorities according to needs.

There was at one time a Metropolitan District Planning Association of Minneapolis-St. Paul and environs sponsored by the northwest section

2. Tableman, Betty, Governmental Organization in Metropolitan Areas, University of Michigan Press, Ann Arbor, 1951
3. Reed, Thomas H., Municipal Government in the U. S., Chapter 18

of the American Society of Civil Engineers. It was well underway as an effective planning organization. It brought out a comprehensive report on the sanitary needs of the district in January, 1926 recommending the creation of a metropolitan sanitary commission. Chapter 181 laws of 1927 authorized the Metropolitan Drainage Commission an "authority" for building the Twin City Sewage Disposal Plant and all intercepting sewers. This association was voluntary. It became a casualty of the depression but is now being revived by a new group.

The utility companies have long recognized the metropolitan character of this district. Electric light and power is furnished the entire area by one company. The Bell Telephone Company serves the entire area, transportation by streetcar and bus is furnished by one company. There has been established two "authorities"—the Airport Commission and the Sewage Disposal Commission, which have proved their worth. The need of a Highway and Parkway Commission to solve the traffic problems of this metropolitan area with its population of 1,200,000 is the spearhead of the proposed revival of the metropolitan planning commission. These authorities are comparatively easy to create because they involve just one change at a time, to solve one problem. An educational campaign can be carried on to bring about the necessary public opinion but some one or group must take the lead and Voluntary Planning Associations have the best record for doing this. There are any number of examples, of course, of such metropolitan planning associations. Probably the latest and most comprehensive is the San Diego County Planning Congress organized March 19, 1953 by the County Planning Com-Commission and ten cities having planning commissions in this "standard metropolitan area" of 4300 square miles and 560,000 people and acres of unspoiled land; the unincorporated "fringe areas" around these cities. The Bureau of the Census is to be commended in setting up these "standard metropolitan areas" throughout the U. S. They emphasize the planning possibilities of these areas and that something should and can be done at once to create official "authorities" on a metropolitan wide basis. In all these areas there are engineering problems which cannot be solved until such official agencies are formed. The simple and logical way to get action is through Voluntary Planning Associations grounded on this standard area conception.

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The technical papers published in the past year are presented below. Technical-division sponsorship is indicated by an abbreviation at the end of each Separate Number, the symbols referring to: Air Transport (AT), City Planning (CP), Construction (CO), Engineering Mechanics (EM), Highway (HW), Hydraulics (HY), Irrigation and Drainage (IR), Power (PO), Sanitary Engineering (SA), Soil Mechanics and Foundations (SM), Structural (ST), Surveying and Mapping (SU), and Waterways (WW) divisions. For titles and order coupons, refer to the appropriate issue of "Civil Engineering" or write for a cumulative price list.

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a. Presented at the New York (N.Y.) Convention of the Society in October, 1953.
b. Beginning with "Proceedings-Separate No. 290," published in October, 1953, an automatic distribution of papers was inaugurated, as outlined in "Civil Engineering," June, 1953, page 66.
c. Discussion of several papers, grouped by Divisions.
d. Presented at the Atlanta (Ga.) Convention of the Society in February, 1954.
e. Presented at the Atlantic City (N.J.) Convention in June, 1954.

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